

CLAIMS

We claim:

1. A composition for inducing anti-tumor immunity comprising a tumor cell that expresses (i) a cell surface CD83 polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], or a portion thereof; and (ii) a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to CD137.
2. A composition for inducing anti-tumor immunity comprising a first tumor cell that expresses (i) a cell surface CD83 polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], or a portion thereof; and (ii) a second tumor cell that expresses a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to CD137.
3. The composition of claim 1 wherein the tumor cell is transfected with (i) a recombinant expression construct comprising at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide and at least one second promoter operatively linked to a polynucleotide that encodes a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to a CD137 polypeptide or (ii) a first recombinant expression construct that comprises at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide and a second recombinant expression construct comprising at least one second promoter operatively linked to a polynucleotide encoding a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to a CD137 polypeptide.

4. The composition of claim 2 wherein the first tumor cell is transfected with a first recombinant expression construct comprising at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide, and wherein the second tumor cell is transfected with a second recombinant expression construct comprising at least one second promoter operatively linked to a polynucleotide encoding a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to a CD137 polypeptide.

5. A composition for inducing anti-tumor immunity comprising (i) a recombinant expression construct comprising at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide and at least one second promoter operatively linked to a polynucleotide that encodes a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to a CD137 polypeptide or (ii) a first recombinant expression construct that comprises at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide and a second recombinant expression construct comprising at least one second promoter operatively linked to a polynucleotide encoding a cell surface form of an antibody, or antigen-binding fragment thereof, that binds specifically to a CD137 polypeptide, wherein the cell surface CD83 polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], or a portion thereof.

6. The composition of claim 5 comprising a recombinant expression vector comprising at least one promoter operatively linked to a polynucleotide sequence encoding at least one tumor antigen.

7. A composition for inducing anti-tumor immunity comprising (i) a first recombinant expression construct that comprises at least one promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide, wherein the CD83 polypeptide comprises an amino acid sequence selected from the group consisting of SEQ

ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], or a portion thereof, and (ii) a second recombinant expression construct comprising at least one second promoter operatively linked to a polynucleotide encoding at least one tumor antigen.

8. The composition of either claim 6 or claim 7 wherein the tumor antigen is expressed by a tumor cell in a biological sample that is obtained from a subject having a malignant condition.

9. The composition of any one of claims 1-5 wherein the antibody that specifically binds to CD137 is a single chain Fv antibody.

10. The composition of any one of claims 1-5 wherein the antigen-binding fragment is selected from the group consisting of an Fab, an Fab', an (Fab')₂, and an Fv.

11. A method for inducing anti-tumor immunity in a subject comprising administering to a subject the composition of any one of claims 1-7 and a pharmaceutically acceptable carrier.

12. A method for inducing anti-tumor immunity comprising administering to a host a composition comprising (i) a first tumor cell that expresses a cell surface CD83 polypeptide, wherein the CD83 polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], or a portion thereof; (ii) a second tumor cell that expresses on its surface an antibody, or an antigen-binding fragment thereof, that specifically binds to a CD137 polypeptide; and (iii) a pharmaceutically acceptable carrier.

13. The method of claim 12 wherein the ability of each of the first and second tumor cells to divide in the host is inhibited or substantially impaired.
14. The method of claim 12 wherein the antibody is a single chain Fv antibody.
15. The method of claim 12 wherein the antigen-binding fragment is selected from the group consisting of an Fab, an Fab', an (Fab')₂, and an Fv.
16. The method of claim 12 wherein the first and the second tumor cells are obtained from a biological sample obtained from the host.
17. A method for treating a subject having a malignant condition comprising (a) isolating from the subject at least one tumor cell; (b) introducing into the tumor cell a composition according to any one of claims 5-7; (c) inhibiting or substantially impairing an ability of the tumor cell to divide to obtain a modified tumor cell; and (d) administering to the subject the modified tumor cell and a pharmaceutically acceptable carrier, thereby inducing or enhancing an immune response to the malignant condition in the subject.
18. The method of claim 17 wherein the malignant condition is selected from the group consisting of melanoma, carcinoma, sarcoma, lymphoma, and leukemia.
19. The method of claim 18 wherein the malignant condition is melanoma.
20. The method of claim 17 comprising an anti-immunosuppression step.

21. The method of claim 20 wherein the anti-immunosuppression step comprises administering to the subject an agent that inhibits an immunosuppressive effect of an immunosuppressive molecule selected from the group consisting of a TGF-beta polypeptide, a CTLA4 polypeptide, a glucocorticoid-induced tumor necrosis factor receptor, and Fas ligand.

22. The method of claim 21 wherein the agent is selected from the group consisting of a chemotherapeutic agent, an antibody or antigen-binding fragment thereof that specifically binds to a TGF-beta polypeptide, an antibody or antigen-binding fragment thereof that specifically binds to a CTLA4 polypeptide, and an antibody or antigen-binding fragment thereof that specifically binds to a glucocorticoid-induced tumor necrosis factor receptor.

23. A recombinant expression construct comprising at least one first promoter operatively linked to a polynucleotide encoding a cell surface CD83 polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2 [NM_004233; BC_030830], SEQ ID NO:6 [AJ245551; NM_009856], and SEQ ID NO:10 [XM_341509], and at least one second promoter operatively linked to a polynucleotide that encodes a cell surface form of an antibody or antigen-binding fragment thereof that binds specifically to a CD137 polypeptide.

24. The recombinant expression construct of claim 23 wherein the antibody is a single chain Fv antibody.

25. The recombinant expression construct of claim 23 wherein the antigen-binding fragment is selected from the group consisting of an Fab, an Fab', an (Fab')₂, and an Fv.

26. A host cell comprising the recombination expression construct according to any one of claims 23-25.